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DATA EVALUATION RECORD

1. Chemical: Benodanil: 2-Iodobenzanilide

2. Test Material: BAS 317 00 F (50% wettable powder)

3. Study Type: Freshwater Fish Acute Toxicity
   Species tested: Carp (Cyprinus carpio)

4. Citation: Gelbke, H.P. and Munk, R. (1979) Report on Testing for Acute Toxicity. No. 79/439. Prepared by BASF Ag., Industrial Hygiene and Toxicology. Submitted by Mallinckrodt, Inc., St. Louis, MO. EPA File Symbol 372-AU. Accession No. 261692.

5. Reviewed by: Carol M. Natella
   Wildlife Biologist
   EEB/HED
   Signature: C. M. Natella
   Date: 9-29-86

6. Approved by: Harry Craven
   Supervisory Biologist
   EEB/HED
   Signature:
   Date: H. T. Craven 9/29/86

7. Conclusions:

The study is scientifically sound. With an LC_{50} of 3.99 ppm (95% C.L. 3.16 and 4.64), a 50 percent wettable powder formulation of benodanil is moderately toxic to carp.

This study, however, does not fulfill the Guidelines requirement for an acute toxicity determination for a freshwater fish performed with the formulated product.

8. Recommendations: N/A.

9. Background: N/A.

10. Discussion of Individual Tests: N/A.

11. Materials and Methods:

a. Test Animals: Carp (Cyprinus carpio). Weight: 8.7 g; Length: 8.1 cm; Supplier: Teichwirtschaftlicher Beispielbetrieb.

b. Test System: Glass aquariums holding 100 L water (80 cm x 35 cm x 45 cm). Dilution water was deionized then reconstituted; pH of the dilution water was 8 ± 0.1, calcium 82 mg/L. Test temperature was held at 21 °C ± 1. The test system was continuously aerated.

c. Dosing: Static bioassay.

d. Design: 10 fish per level; 7 dose levels plus control were used.

e. Statistics: Finney probit analysis was used to calculate the LC_{50} values.

12. Reported Results:

Concentration mg/L	Number Dead After 1 Hr	4 Hr	24 Hr	48 Hr	72 Hr	96 Hr
2.15	0	0	0	0	0	0
3.16	0	0	0	0	0	0
4.64	0	0	0	1	3	9
6.81	0	0	0	1	5	10
10.00	0	0	0	1	7	10
21.50	0	0	0	2	7	10
31.60	0	0	0	1	6	10
Control	0	0	0	0	0	0

Toxicity symptoms: apathy, exophthalmus, gasping, narcosis-like conditions, side position, tumbling.

13. Study Author's Conclusions:

24 Hr $LC_{50} > 31.60$
48 Hr $LC_{50} > 31.60$
96 Hr $LC_{50} > 3.16$; $LC_{50} < 4.64$

14. Reviewer's Discussion and Interpretation of the Study:

a. Test Procedures: The author states that the test procedures were in accordance with Leaflet No. 33, 2nd Ed., September 1975 of the "Biologische Bundesanstalt

Fuer Land- Und Forstwirtschaft." The study was not in accordance with protocols recommended by the Guidelines for the following reasons:

(1) The carp is not a recommended bioassay organism.

(2) The test aquaria were aerated (it is unclear from the document whether test concentrations are nominal or measured).

(3) The formulated product rather than the technical was tested.

b. Statistical Analysis: The 96-hour LC_{50} value was calculated using Stephan's computer program. The binomial test gave an approximate LC_{50} value of 3.99 ppm (95% C.L. 3.16 and 4.64).

c. Discussion/Results: With a 96-hour LC_{50} of 3.99 ppm (95% C.L. 3.16 and 4.64), a 50 percent wettable powder formulation of benodanil is moderately toxic to carp.

d. Adequacy of Study:

(1) Classification: Supplemental, for the formulated product.

(2) Rationale: Although the test vessels were aerated and the carp is not a recommended species, this study nonetheless appears to be scientifically sound.

(3) Repairability: No.

15. Completion of One-Liner:

Yes, August 11, 1986.

NAIELLA BENODANIL CARP

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
10	10	10	100	.0976563
6.81	10	10	100	.0976563
4.64	10	9	90	1.07422
3.16	10	0	0	.0976563
2.15	10	0	0	.0976563

THE BINOMIAL TEST SHOWS THAT 3.16 AND 4.64 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 3.98746

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.

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